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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,230	09/08/2003	David M. Kinder	017198-0117	1075

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EXAMINER
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BUSHEY, CHARLES S

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/656,230

Applicant(s)

KINDER ET AL.

Examiner

Scott Bushey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7-12, 21-24 and 26-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-12, 21-24 and 26-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(f) he did not himself invent the subject matter sought to be patented.

2. Claims 1-4, 7-12, 21-24, and 26-32 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter.

On page 4 of applicant's response filed on February 16, 2006, under the heading Inventorship, applicant's attorney admits that at least one of the named applicants, David M. Kinder, is actually not an inventor of the claimed subject matter. Applicant must submit a valid correction of inventorship to overcome this rejection.

3. Claims 1, 2, 7-10, 12, 21, 22, 24, and 27-32 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Sunder et al '638 (Fig. 2a; col. 1, lines 20-23; col. 3, lines 8-11, 45-55; col. 4, lines 16-32; col. 5, lines 5-17; col. 6, lines 49-51; col. 7, lines 5-6, 28-30, 54-57, 65-67; col. 8, lines 1, 15-20).

Applicant should note that with respect to the claimed range of ratio of void area to plate surface area, the reference clearly teaches 0.20:1 (20%), and thus the reference anticipates applicant's claimed range, as set forth by instant claims 2 and 22. With respect to the claimed ridge angle relative to the horizontal, the reference clearly teaches an angle range of 20 to 70 degrees relative to horizontal, and thus since the

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reference range encompasses applicant's claimed range, as set forth by each of applicant's instant claims, such is anticipated thereby. With respect to the pack being adapted to inhibit accumulation of bacteria on the sheets, the reference teaches vertical alignment of the sheets, which will assist in drainage of the sheets, which will move any bacteria through the packing without the tendency to collect and accumulate on the sheets.

With respect to the intended use of the claimed fill material being within a counter-flow film fill tower, a counter-flow splash fill tower, and a cross-flow splash fill tower, it should be noted that while the preferred use of the Sunder '638 packing is within a counter-flow contact tower, the reference packing is disclosed as being generally applicable to any direct contact cooling application. See col. 7, line 65 through col. 8, line 2. It should also be noted that it is well known within the art to utilize a packing element of a given construction within various contact assemblies, including cross-flow and counter-flow configurations. Note the newly cited references discussed in paragraph 10 below, which demonstrate the well known nature of using a given fill within various flow regimes, including cross-flow and counter-flow contactors.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 3 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sunder et al '638 taken together with Kessler.

Sunder et al '638 (Fig. 2a; col. 1, lines 20-23; col. 3, lines 8-11, 45-55; col. 4, lines 16-32; col. 5, lines 5-17; col. 6, lines 49-51; col. 7, lines 5-6, 28-30, 54-57, 65-67; col. 8, lines 1, 15-20) as applied above substantially disclose applicant's invention as recited by instant claims 3 and 23, except for the specifically claimed void volume of 31.5%. Sunder et al '638 does disclose using a void volume of about 20%.

Kessler (Fig. 1; col. 1, lines 11-12; col. 3, lines 24-32) teaches using a void volume of between 10 to 50% within a corrugated packing element similar to that of Sunder et al '638. It would have been obvious to an artisan at the time of the invention, to modify the ratio of void area to the total surface area of the packing plates of Sunder et al '638, in view of Kessler, since such would reduce the pressure drop across the packing and thus reduce undesirable flooding of the packing.

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7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sunder et al '638 taken together with Buchholz et al.

Sunder et al '638 (Fig. 2a; col. 1, lines 20-23; col. 3, lines 8-11, 45-55; col. 4, lines 16-32; col. 5, lines 5-17; col. 6, lines 49-51; col. 7, lines 5-6, 28-30, 54-57, 65-67; col. 8, lines 1, 15-20) as applied above substantially disclose applicant's invention as recited by instant claim 4, except for the voids being arranged so as to allow water droplets to drop substantially vertically through voids in at least two consecutive ridges in a sheet.

Buchholz et al (Fig. 7; col. 3, lines 9 and 12; col. 4, lines 58-59; col. 5, lines 7-27) discloses a packing element wherein apertures are arranged on the ridge peaks and in vertical alignment with one another on consecutive ridges on a sheet of the pack which allow for water droplets to drop vertically through at least two consecutive ridges in the sheet. It would have been obvious to an artisan at the time of the invention, to modify the placement of the voids of the packing elements as taught by Sunder et al '638, in view of Buchholz et al, since such would allow for free fall of droplets, which would splatter into tiny drops upon hitting a surface of the packing, thus creating more surface area for phase interaction within the column.

8. Claims 11 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sunder et al '638 taken together with the technical paper from the Cooling Tower Institute 1993 Annual Meeting, as submitted by applicant.

Sunder et al '638 as applied above substantially discloses applicant's invention as recited by instant claims 11 and 26 except for the packing being formed specifically

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from PVC. Sunder et al '638 does disclose that it is known to construct the packing from a variety of materials, including plastics.

The technical paper from the Cooling Tower Institute 1993 Annual Meeting, as submitted by applicant makes it clear that it was well known within the art at the time of the invention to construct film fill packs from PVC material. It would have been obvious to an artisan at the time of the invention, to utilize PVC as the chosen plastic material of the Sunder et al '638 pack, in view of the secondary reference, since such is well known to provide the advantages of weight reduction and corrosion resistance of the pack over metallic packing materials.

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 1-4, 7-12, 21-24, and 26-32 have been considered but are moot in view of the new ground of rejection, as set forth in paragraph 2 above.

With respect to applicant's arguments that the prior art fails to disclose or suggest use of claimed fill within various contact regimes, including cross-flow and counter-flow contactors, at least with respect to the Sunder et al '638 reference, which forms the basis for the rejection of each of the pending claims, such has been specifically addressed above in the rejection statement of paragraph 3.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant should note Massey, U.S. Patent No. 5,474,832 (col. 9, lines 45-65), Kinney, Jr., U.S. Patent No. 5,104,588 (col. 4, lines 45-53), Phelps, U.S.

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Patent No. 5,023,022 (col. 1, lines 64-65), and Carter et al, U.S. Patent No. 4,518,544 (col. 1, lines 38-43).

11. Applicant's amendment necessitated the new ground of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bushey whose telephone number is 571 272-1153. The examiner can normally be reached on M-Th 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.




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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Scott Bushey  
Primary Examiner  
Art Unit 1724

csb  
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